

Claims

1. An adapter unit (90) including
a channel send/receive unit (150) which sends signaling data to
an exchange of a circuit-switched telecommunications network
(22) and receives signaling data from the exchange,
a data packet send/receive unit (158) which at least in a
normal operating mode sends data packets into a data packet
transfer network (12) and receives data packets from the data
packet transfer network (12),
and a data insertion/extraction unit (160) which at least in
the normal operating mode inserts signaling data coming from
the channel receive unit (150) into data packets and forwards
them to the data packet send unit (158) and which extracts
signaling data from data packets that are received from the
data packet receive unit (158) and forwards it to the channel
send unit (150),
and an operating mode switchover unit which, in the event of a
fault on the side of the data packet transfer network (12) or
in the event of a fault in a telecommunication system operating
on the data packet transfer network (12), switches over into an
emergency operating mode in which telecommunication via the
circuit-switched telecommunications network (22) is ensured.
2. The adapter unit (90a) as claimed in claim 1,
characterized in that
in the emergency operating mode the operating mode switchover
unit entrusts the forwarding of the signaling data to a
different telecommunication system than in the normal operating
mode,
wherein in the emergency operating mode signaling data coming
from the different telecommunication system is preferably sent
via the channel send unit (150).

3. The adapter unit (90b) as claimed in claim 1,
characterized in that
in the emergency operating mode the operating mode switchover
unit entrusts the forwarding of the signaling data to a
5 subscriber terminal (80),
wherein in the emergency operating mode signaling data coming
from the subscriber terminal (80) is preferably sent via the
channel send unit (150).

10 4. The adapter unit (90c, 90d) as claimed in claim 1,
characterized by a protocol conversion unit which in the
emergency operating mode is entrusted by the operating mode
switchover unit to perform a protocol conversion of the
signaling data into a signaling protocol for a data packet
15 transfer network and preferably also vice versa.

5. The adapter unit (90c) as claimed in claim 4,
characterized by a network access unit which in the emergency
operating mode is entrusted by the operating mode switchover
20 unit to perform network access functions for terminals of a
data packet transfer network, in particular a gatekeeper
function in accordance with a protocol of the H.323 protocol
family or a SIP registrar function in accordance with a SIP
protocol or a protocol which is based thereupon.

25 6. The adapter unit (90d) as claimed in claim 4,
characterized by a terminal unit which in the emergency
operating mode is entrusted by the operating mode switchover
unit to perform the function of a terminal in terminal-to-
30 terminal connections of a data packet transfer network, in
particular in peer-to-peer connections.

7. The adapter unit (90) as claimed in one of the claims 1 to
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characterized by at least one of the following features,
the data packets are transferred in accordance with an Internet
protocol in the data packet transfer network (12),
the circuit-switched telecommunications network (20, 22) is a
5 fixed network or a mobile radio network,
the signaling data complies with a signaling protocol for
exchange lines between an exchange and a terminal or between an
exchange and a telecommunication system (12) which switches to
or from a plurality of terminals (60 to 64) which are operated
10 at the telecommunication system (12),
wherein the signaling protocol is preferably the protocol DSS1
or a protocol which is based thereupon.

8. A method for operating a telecommunications system (14),
15 with the following steps being executed in a normal operating
mode:

receiving signaling data of a circuit-switched
telecommunications network (20, 22),
tunneling (160, 190) the received signaling data via a data
20 packet transfer network (12),
processing the tunneled signaling data in a telecommunication
system (14) in accordance with a signaling protocol.

9. The method as claimed in claim 8,
25 characterized by the steps:
detecting the failure of the data packet transfer network (12)
or of the telecommunication system (14),
automatically switching over into an emergency operating mode
after the detection of the failure.

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10. The method as claimed in claim 9,
characterized by the steps:
detecting the reactivation of the data packet transfer network
(12) or of the telecommunication system (14),

automatically switching over into the normal operating mode after the detection of the reactivation.

11. The method as claimed in claim 9 or 10,
5 characterized by at least one of the following steps being executed in the emergency operating mode:
forwarding the signaling data coming from the channel receive unit (150) to a further telecommunication system, preferably to a telecommunication system having significantly restricted
10 performance features in comparison with the telecommunication system (14) which is used in the normal operating mode, wherein the functions of the telecommunication system are preferably performed by an IP telephone (80),
forwarding signaling data of the further telecommunication
15 system to the channel send unit (150).

12. The method as claimed in claim 11,
characterized by at least one of the following steps being executed in the emergency operating mode:
20 an IP telephone (80) detecting the failure or the reactivation, registering at least one further IP telephone (82) at the further telecommunication system, preferably retaining the interface protocol or a plurality of interface protocols in comparison with the normal operating mode.

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13. The method as claimed in claim 9 or 10,
characterized by at least one of the following steps being executed in the emergency operating mode:
forwarding the signaling data coming from the channel receive
30 unit (150) to a telephone (80),
wherein the telephone performs functions of a telephone which is operated directly at the circuit-switched telecommunications network (20, 22),
forwarding signaling data of the telephone to the channel send

unit (150).

14. The method as claimed in claim 13,
characterized by at least one of the following steps being
5 executed in the emergency operating mode:
an IP telephone (80), which in the emergency operating mode
performs functions of a telephone which is operated directly at
the circuit-switched telecommunications network (20, 22),
detecting the failure or the reactivation.

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15. The method as claimed in claim 9 or 10,
characterized by at least one of the following steps being
executed in the emergency operating mode:
performing a protocol conversion of the signaling data into a
15 signaling protocol for a data packet transfer network,
transferring the converted signaling data to an IP telephone
(82),
receiving signaling data in accordance with a signaling
protocol for a data packet transfer network from an IP
20 telephone (82) and performing a protocol conversion for the
received signaling data in accordance with a protocol for the
signaling in the circuit-switched telecommunications network
(22).

25 16. The method as claimed in claim 15,
characterized by at least one of the following steps being
executed in the emergency operating mode:
an adapter unit (80c, 80d) detecting the failure or the
reactivation,
30 registering at least one IP telephone (82) with the adapter
unit (90c) or setting up a peer-to-peer connection between the
adapter unit (90d) and the IP telephone (82).

17. The method as claimed in claim 15 or 16,

characterized in that
the signaling protocol for the data packet transfer network is
a protocol of the H.323 protocol family or a SIP protocol or a
peer-to-peer protocol.